1

Method for data exchange in a
wireless local area network
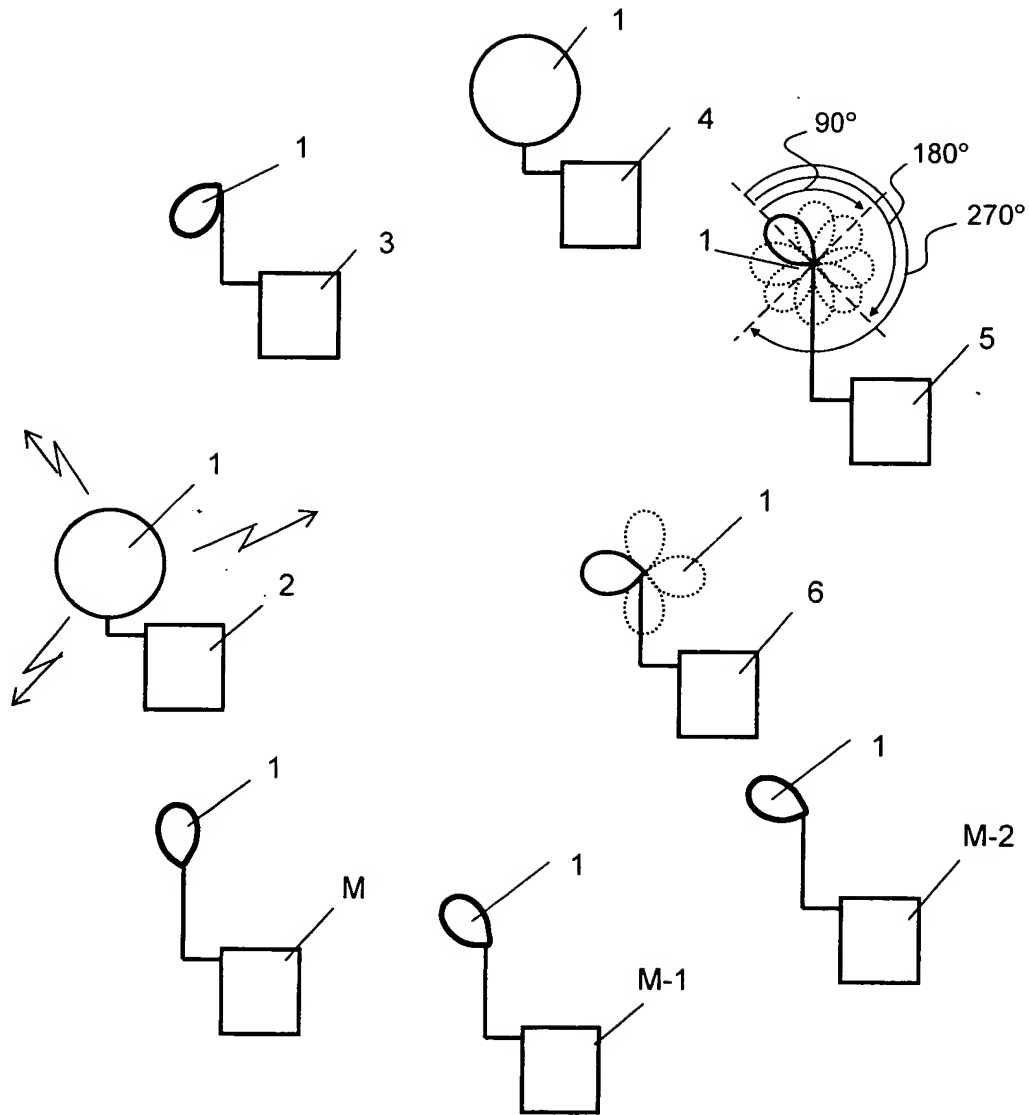

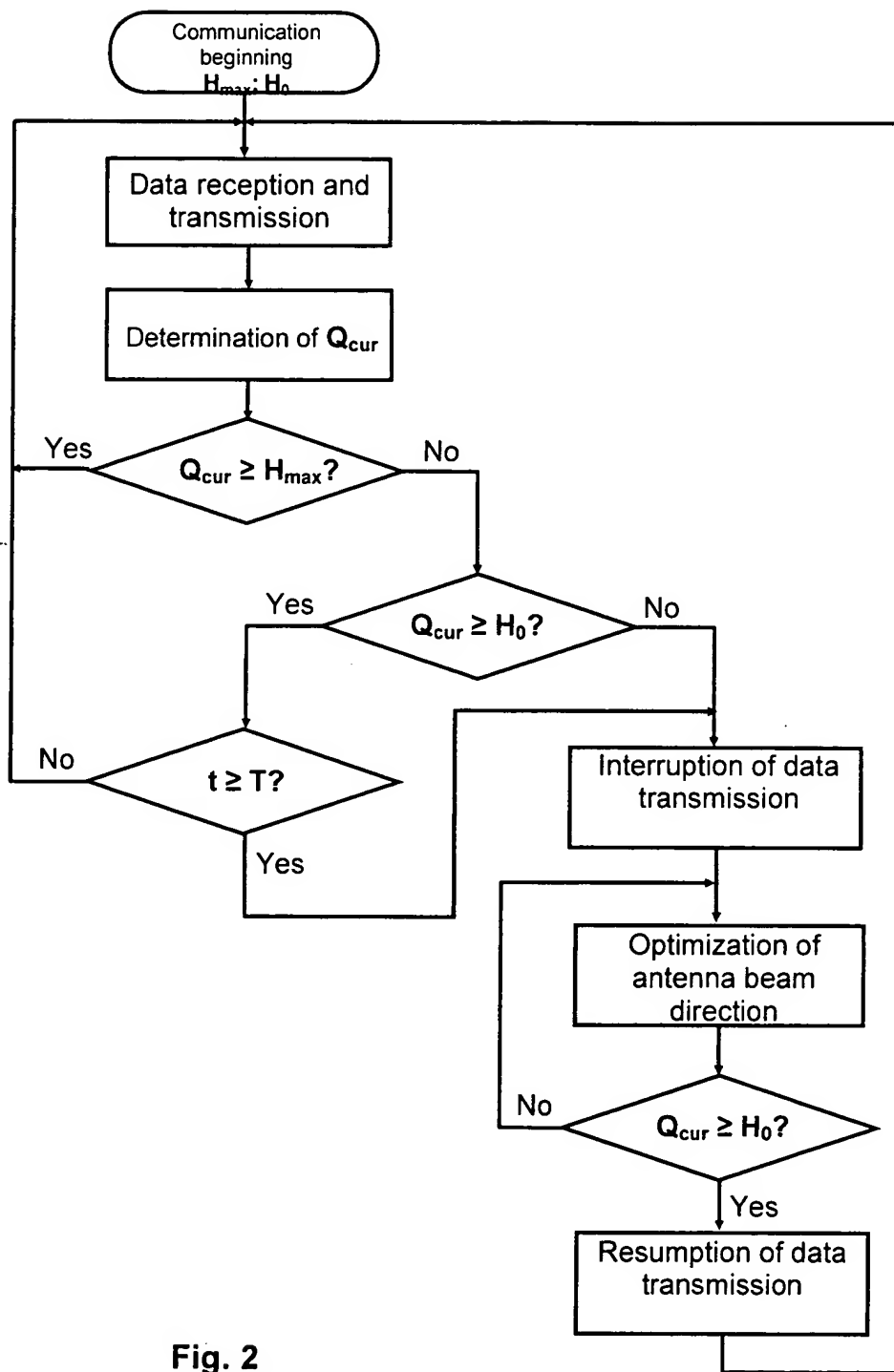**Fig. 1**
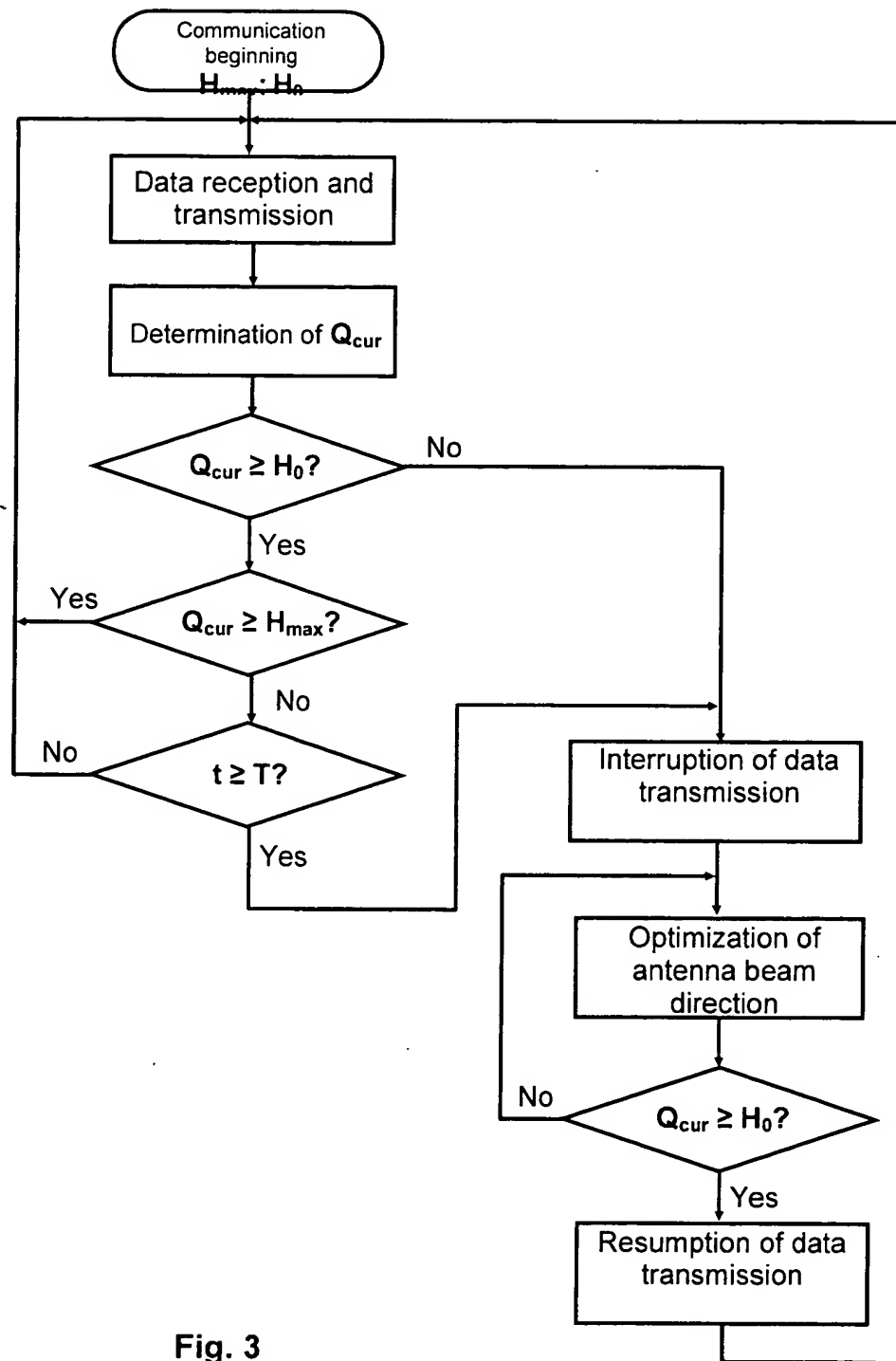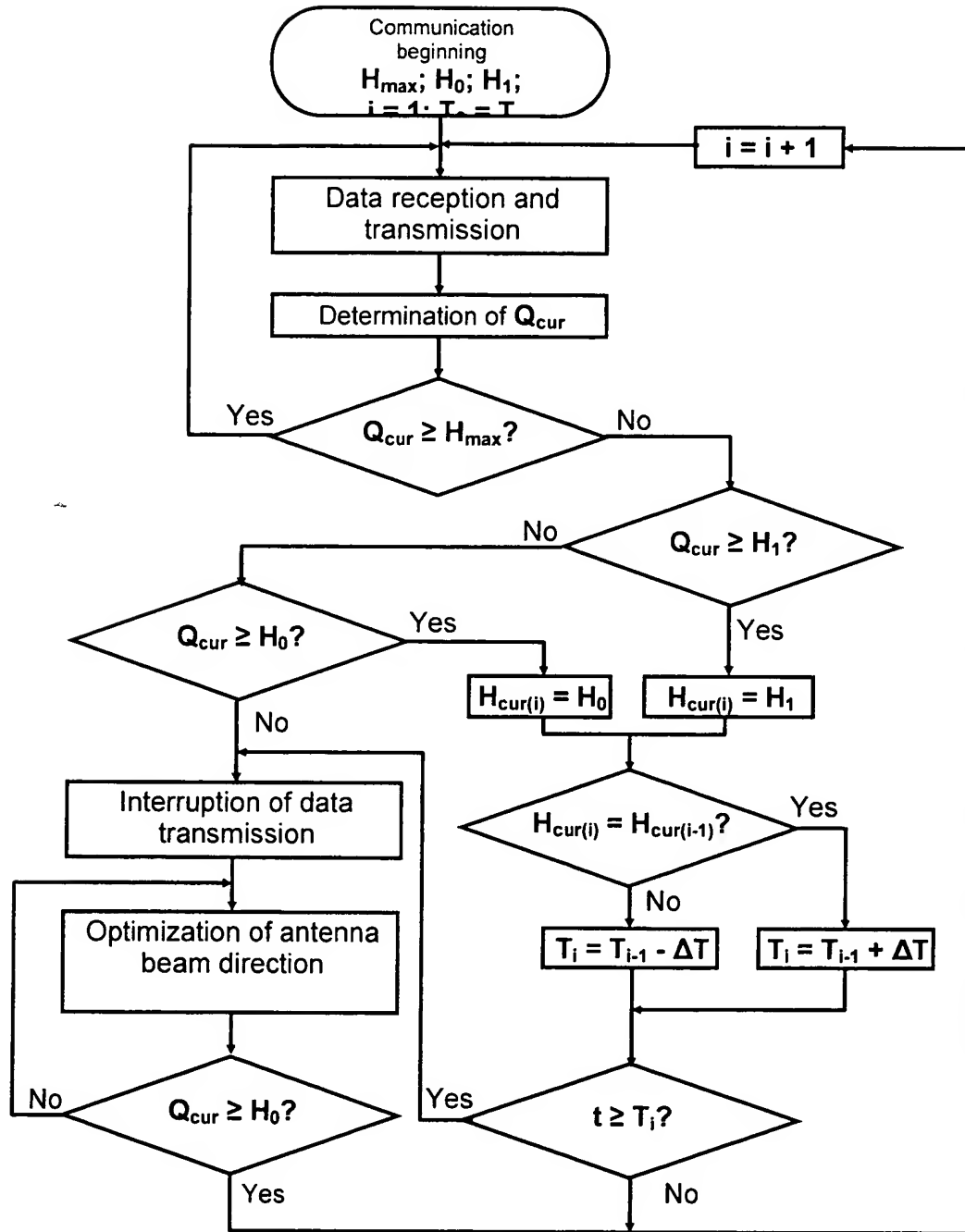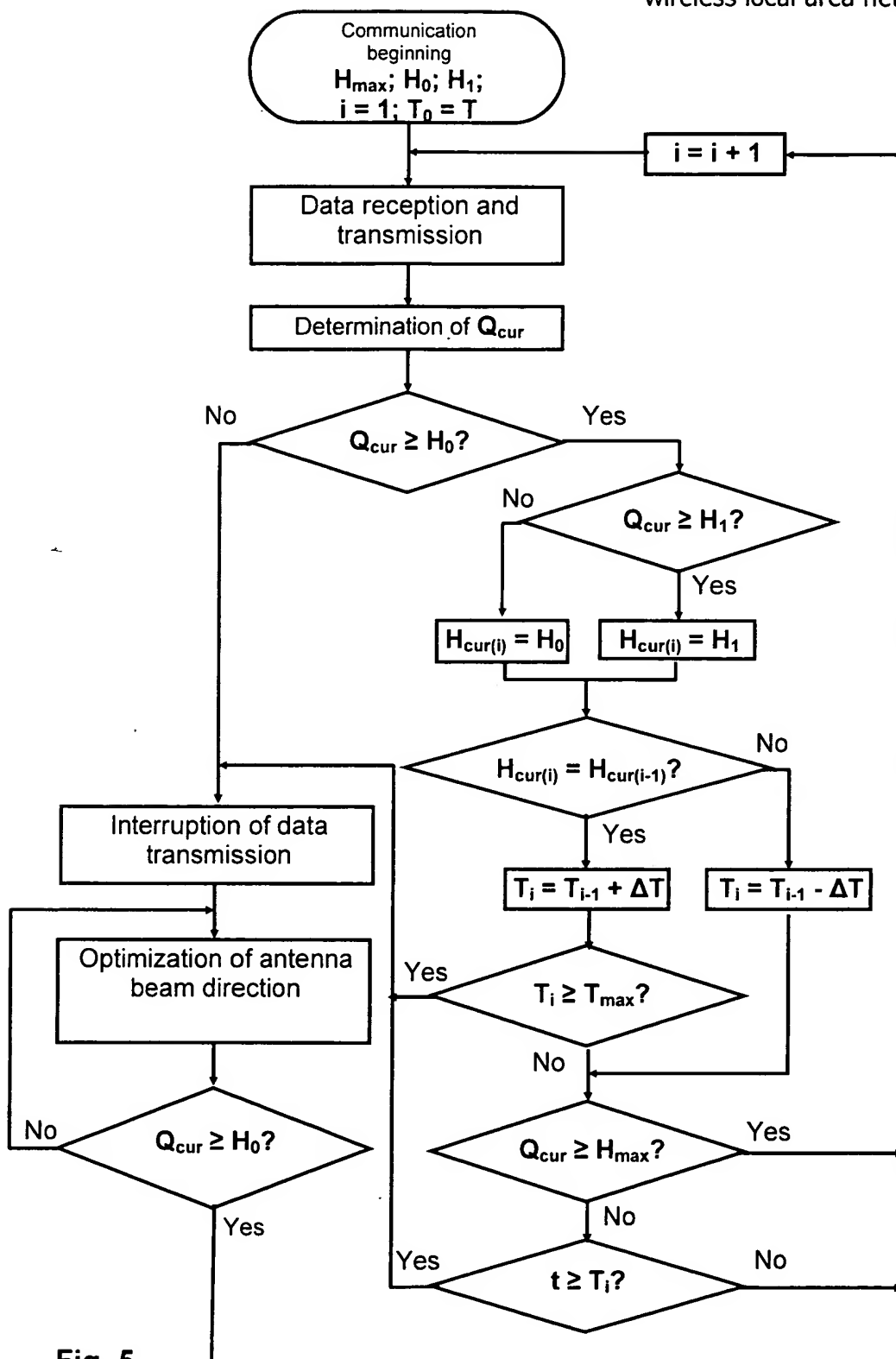
Method for data exchange in a
wireless local area network

Fig. 2

Method for data exchange in a
wireless local area network

```
         ┌─────────────────────┐
         │   Communication     │
         │     beginning       │
         │   H̲ₘₐₓ; H₀          │
         └─────────────────────┘
                   │
    ┌──────────────┼──────────────────────────────────────┐
    │              ▼                                        │
    │   ┌─────────────────────┐                             │
    │   │ Data reception and  │                             │
    │   │   transmission      │                             │
    │   └─────────────────────┘                             │
    │              │                                        │
    │              ▼                                        │
    │   ┌─────────────────────┐                             │
    │   │ Determination of Q_cur│                           │
    │   └─────────────────────┘                             │
    │              │                                        │
    │              ▼                                        │
    │         ◇ Q_cur ≥ H₀? ◇───────No──────────┐          │
    │              │Yes                          │          │
    │              ▼                             │          │
    │ Yes───◇ Q_cur ≥ H_max? ◇                   │          │
    │ │            │No                           │          │
    │ │            ▼                             ▼          │
    │ │      ◇ t ≥ T? ◇────No──┐    ┌──────────────────┐   │
    │ │            │Yes         │    │ Interruption of  │   │
    │ └────────────┘            │    │ data transmission│   │
    │                           │    └──────────────────┘   │
    │                           │            │              │
    │                           └────────────┤              │
    │                                        ▼              │
    │                            ┌──────────────────┐       │
    │                            │  Optimization of │       │
    │                            │  antenna beam    │       │
    │                            │  direction       │       │
    │                            └──────────────────┘       │
    │                                        │              │
    │                        No──◇ Q_cur ≥ H₀? ◇            │
    │                                        │Yes           │
    │                            ┌──────────────────┐       │
    │                            │ Resumption of    │       │
    │                            │ data transmission│       │
    │                            └──────────────────┘       │
    └───────────────────────────────────────┴──────────────┘
```

Fig. 3

Method for data exchange in a
wireless local area network


```
                    ┌─────────────────────────┐
                    │   Communication         │
                    │     beginning           │
                    │  Hmax; H0; H1;          │
                    │  i = 1; T0 = T          │
                    └─────────────────────────┘
```

Communication
beginning
H_{max}; H_0; H_1;
i = 1; T_0 = T

i = i + 1

Data reception and
transmission

Determination of Q_{cur}

$Q_{cur} \geq H_{max}$?

Yes / No

$Q_{cur} \geq H_1$?

No

$Q_{cur} \geq H_0$?

Yes / No

$H_{cur(i)} = H_0$

$H_{cur(i)} = H_1$

Yes

Interruption of data
transmission

Optimization of antenna
beam direction

$H_{cur(i)} = H_{cur(i-1)}$?

Yes / No

$T_i = T_{i-1} - \Delta T$

$T_i = T_{i-1} + \Delta T$

$Q_{cur} \geq H_0$?

No / Yes

$t \geq T_i$?

Yes / No

Fig. 4

Method for data exchange in a
wireless local area network

Communication
beginning
H_{max}; H_0; H_1;
$i = 1$; $T_0 = T$

$i = i + 1$

Data reception and
transmission

Determination of Q_{cur}

No — $Q_{cur} \geq H_0$? — Yes

No — $Q_{cur} \geq H_1$? — Yes

$H_{cur(i)} = H_0$ $H_{cur(i)} = H_1$

$H_{cur(i)} = H_{cur(i-1)}$? — No

Yes

$T_i = T_{i-1} + \Delta T$ $T_i = T_{i-1} - \Delta T$

Interruption of data
transmission

Optimization of antenna
beam direction

Yes — $T_i \geq T_{max}$?

No

No — $Q_{cur} \geq H_0$? — Yes

$Q_{cur} \geq H_{max}$? — Yes
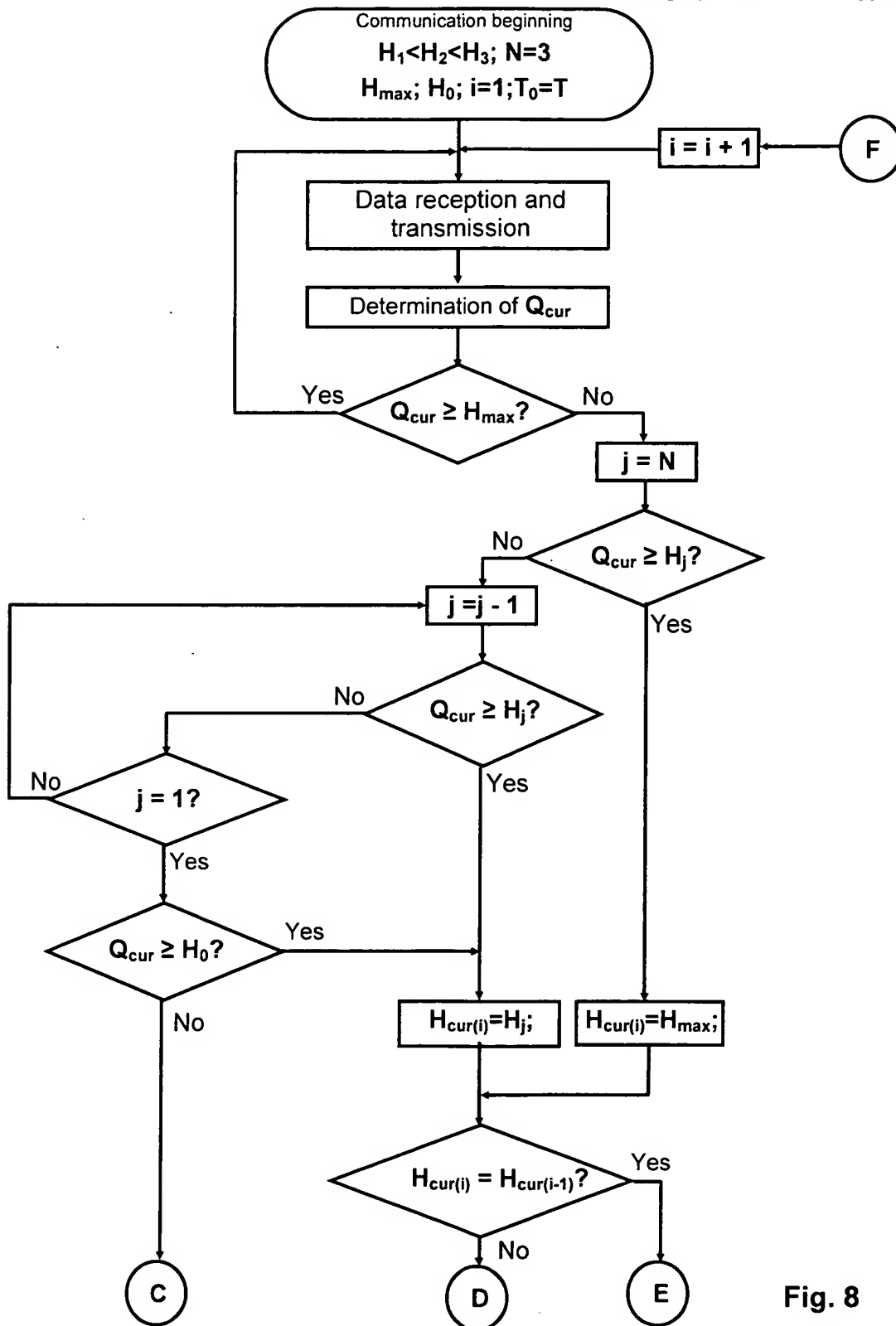
No

Yes — $t \geq T_i$? — No

Fig. 5

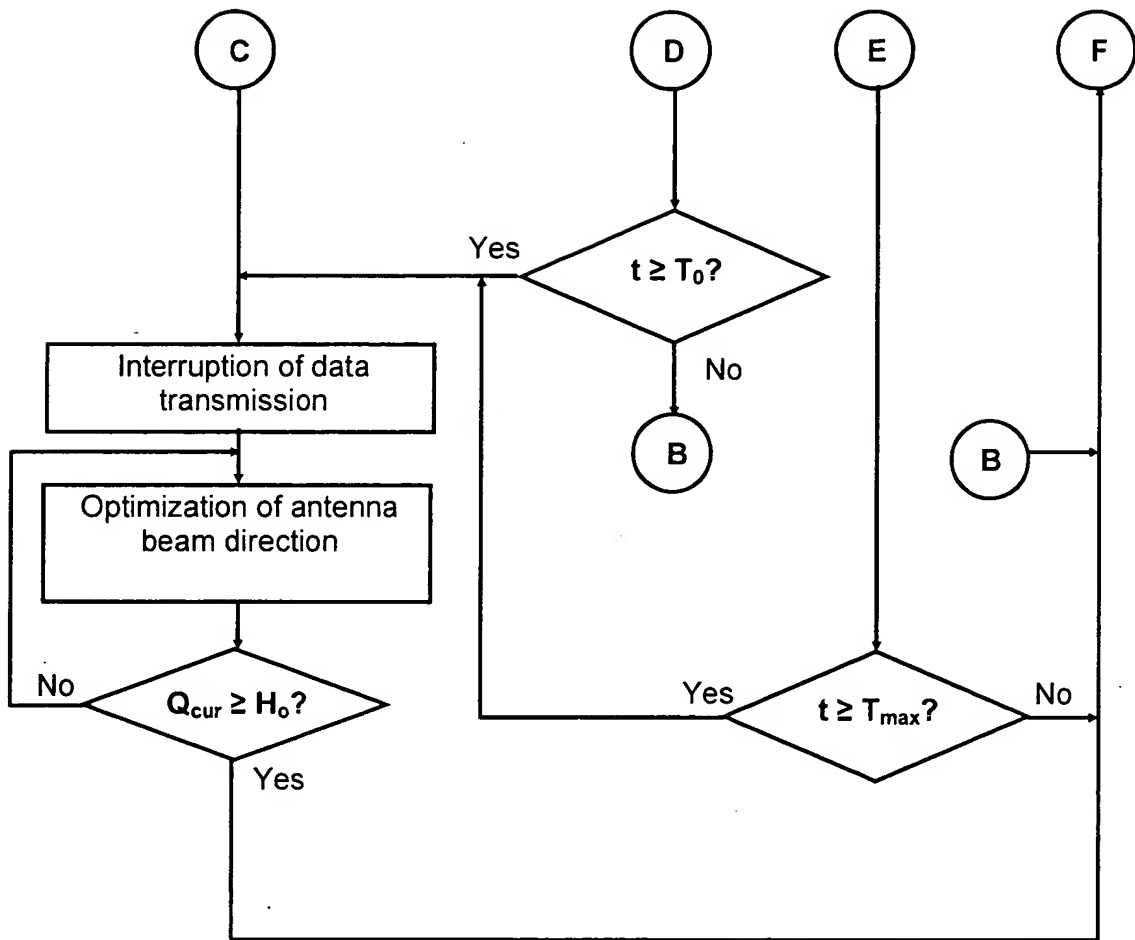Method for data exchange in a
wireless local area network

Fig. 6

Method for data exchange in a
wireless local area network

```
         ┌─────────────────────────┐
         │   Communication         │
         │   beginning             │
         │  H_max; H_0; H_1;       │
         │  i = 1; T_0 = T         │
         └─────────────────────────┘
```

H_{max}; H_0; H_1;
$i = 1$; $T_0 = T$

Communication beginning

$i = i + 1$

Data reception and
transmission

Determination of Q_{cur}

$Q_{cur} \geq H_{max}$? — Yes / No

$Q_{cur} \geq H_1$? — No / Yes

$Q_{cur} \geq H_0$? — Yes / No

$H_{cur(i)} = H_1$

$H_{cur(i)} = H_{max}$

$H_{cur(i)} = H_{cur(i-1)}$? — Yes / No

Interruption of data
transmission

Optimization of antenna
beam direction

$t \geq T_0$? — Yes / No

$Q_{cur} \geq H_0$? — No / Yes

Ⓐ

$t \geq T_{max}$? — Yes / No

Ⓐ
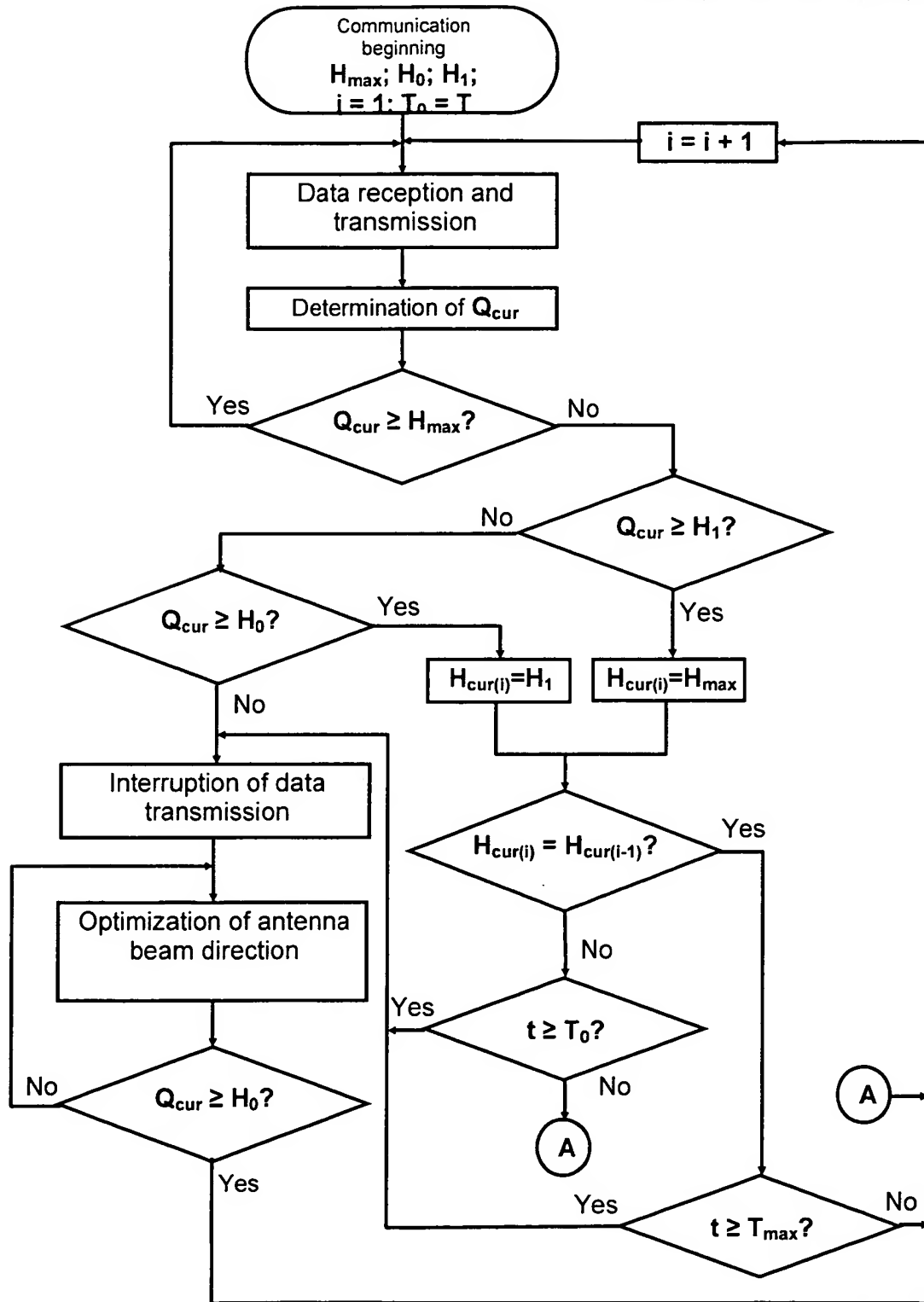
Fig. 7

Method for data exchange in a
wireless local area network

Fig. 8

9

Method for data exchange in a
wireless local area network

Fig. 9